The thesis deal with coloring knots by algebraical structures called quandles. We will introduce the theory that is necessary for understanding the knot coloring and we will prove that coloring is a knot invariant. The major part of the thesis is an experiment focused on coloring different knots by different classes of quandles. We will focus on knots which are hardly distinguished by other knot invariants, also the time complexity of coloring different classes of knots in dependency on the number of crossings and on the size of the quandle will be important for us. We will deal also with the connection between knot coloring and other knot invariants.